AMENDMENTS TO THE SPECIFICATION:

Please add Appendix A as attached hereto to the text of the Application following the Abstract Of The Disclosure.

Please amend the paragraph of the Application beginning at line 7 on page 9 of the Application in accordance with the following:

[0034] Further, in the proceeding discussion, the present invention is described in relation to Kirchhoff and finite difference wave equation algorithms. It should, however, be recognized that various embodiments of the present invention can be applied to a number of different algorithms. In describing the systems and methods of the present invention, knowledge about the Kirchhoff and wave equation algorithms attributable to one of ordinary skill in the art is assumed. Additional details applicable to these algorithms can be found in various references including the following: Paraxial Ray Kirchhoff Migration, Geophysics Vol. 53: No 12, December 1988, pp. 1540-1546; Seismic Data Processing, Society of Exploration Geophysicist Press, 2001, pp. 750-775; Anti-aliased Kirchhoff 3-D Migration, D. Lumley, John Claerbout, Stanford University, Stanford Exploration Project, pp ~~1280~~1282-1285; and Frequency Selective Design of the Kirchhoff Migration Operator, Gray, S. H. 1992, Geophysical Prospecting, 40, 565-571. The ~~entirety of each of the aforementioned references (including portions not cited) is incorporated herein by reference~~ referenced portions of the foregoing publications are included in Appendix A attached hereto.

Please amend the paragraph of the Application beginning at line 19 on page 21 of the Application in accordance with the following:

[0067] At stage "C" of the processing pipeline, the input trace is filtered to produce twenty filtered samples straddling the contributing sample number calculated in the preceding stage "B" of the processing pipeline. This anti-aliasing filtering removes unreliable frequency components included within the input trace. Calculating the

frequency at which to filter is done by implementing a function, F(Vrms,Sa,Sb). The following is one example of such a function:

Dp=8*sqrt[(Sa*X_distance_spacing*X_distance_spacing)+(Sb* Y_distance_spacing*Y_distance_spacing), where Sa is the lateral distance in the x direction between the input trace and the image point and Sb is the lateral distance in the y direction between the input trace and the image point, and where X_distance_spacing is the distance between input trace rows in the x dimension and Y_distance_spacing is the distance between input trace rows in the y dimension.

Kp=Dp*Dt/(Vrms*Time), where Vrms is the interpolated velocity provided from the aforementioned stage "A" of the processing pipeline, Time is the calculated time of the input trace from the aforementioned stage "B" of the processing pipeline that contributes to the image point, and Dt is the sample rate of the input trace typically measured in milliseconds.

Filter Frequency=512/(2*Dt*Kp)

Based on this disclosure, one of ordinary skill in the art will appreciate other functions that can be implemented to serve the function of F(Vrms, Sa, Sb). The following references provide additional information about anti-aliasing in relation to a Kirchhoff migration: Anti-aliased Kirchhoff 3-D migration, D. Lumley, John Claerbout, Stanford University, Stanford Exploration Project pp. ~~1280~~1282-1285; and Frequency Selective design of the Kirchhoff migration operator, Gray, S. H. 1992, Geophysical Prospecting, 40, pp. 565-571. ~~Both of the aforementioned references were previously incorporated herein by reference for all purposes~~ The referenced portions of the foregoing publications are included in Appendix A attached hereto.

Please amend the paragraph of the Application beginning at line 14 on page 27 in accordance with the following:

[0078] In stage "A" a function F(Dx,Dy,Dz,Vint,Dt, Data) is set up to create a set of simultaneous equations. In the function, Dx, Dy and Dz are the distances between the grid cells in the respective x,y,z coordinate direction. Vint is the interval velocity model, Dt is again the time sampling of the input trace, and Data is the actual input trace data. Example code can be obtained from Claerbout, ~~Imagining~~Imaging the Earth's Interior, p. 136. The ~~entirety of the aforementioned reference (not limited to p. 136) is incorporated herein by reference for all purposes~~ referenced portion of the foregoing publication is included in Appendix A attached hereto. This set of simultaneous equations with boundary conditions form a tri-diagonal matrix.